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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/535,045	03/24/2000	Walter E. Donovan	NVIDP013	2742
28875	7590	02/24/2004	EXAMINER	
SILICON VALLEY INTELLECTUAL PROPERTY GROUP P.O. BOX 721120 SAN JOSE, CA 95172-1120			WALLACE, SCOTT A	
			ART UNIT	PAPER NUMBER
			2671	14
DATE MAILED: 02/24/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/535,045	DONOVAN ET AL.	
Examiner	Art Unit		
Scott Wallace	2671		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 08 July 2002.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-9, 13-19, 21-28 and 31-38 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 15-17 and 33-35 is/are allowed.

6)  Claim(s) 2-4, 6, 8, 10, 13, 14, 18, 21-24, 26, 28, 31, 32, 36 and 38 is/are rejected.

7)  Claim(s) 7, 9, 19, 25, 27 and 37 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/Jul/08 2002.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_\_

***Allowable Subject Matter***

1. The indicated allowability of claims 2-19, 21-37 are withdrawn in view of the newly discovered reference(s) to Malamy et al, Wong et al, Hashimoto et al, Lee, Zwicker et al. Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2, 10, 21, 28 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Wong et al., U.S. Patent No. 6,078,335.

3. As per claims 2 and 21, Wong et al discloses a method for calculating a level of detail (LOD) value for use during computer graphics processing (column 6 lines 53-67 and column 7 lines 1-3), comprising: identifying a plurality of geometrically arranged coordinates (column 6 lines 53-67); computing a distance value based on the geometrically arranged coordinates (column 6 lines 53-67); calculating a LOD value using the distance value for use during computer graphics processing; and estimating a derivative value based on the geometrically arranged coordinates (column 6 lines 53-67 and

**Art Unit: 2671**

column 7 lines 1-3), wherein the distance value is computed based on the derivative value (column 6 lines 60-65).

4. As per claims 10 and 38, Wong et al discloses a method for calculating a level of detail (LOD) value for use during computer graphics processing (column 6 lines 53-67 and column 7 lines 1-3), comprising: identifying a plurality of texture coordinates (column 6 lines 53-67); computing a distance value based on the texture coordinates (column 6 lines 53-67); and calculating a LOD value using the distance value for use during computer graphics processing (column 6 lines 53-67 and column 7 lines 1-3).

5. As per claim 28, Wong et al discloses a computer program embodied on a computer readable medium for calculating a level of detail (LOD) value for use during computer graphics processing (column 6 lines 53-67 and column 7 lines 1-3)), comprising: a code segment for identifying a plurality of textures coordinates (column 6 lines 53-67); a code segment for computing a distance value based on the texture coordinates (column 6 lines 53-67); and a code segment for calculating a LOD value using the distance value for use during computer graphics processing (column 6 lines 53-67 and column 7 lines 1-3).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-4, 6, 8, 22-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong et al in view of Lee, U.S. Patent No. 6,097,397.

8. As per claims 3 and 22, Wong et al does not disclose wherein the geometrically arranged coordinates include (Z<sub>0</sub>, Z<sub>1</sub>, Z<sub>2</sub>, Z<sub>3</sub>) which are representative of a quadrilateral with Z<sub>0</sub> (P<sub>1</sub>) being an

**Art Unit: 2671**

upper left corner of the quadrilateral, Z1 (P3) being an upper right corner of the quadrilateral, Z2 (P2) being a lower left corner of the quadrilateral, Z3 (P4) being a lower right corner of the quadrilateral. This is disclosed in Lee in fig 2a. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a quadrilateral shape because the projection of the generally square pixel forms a quadrilateral (column 4 lines 24-30).

9. As per claims 4 and 23, Lee et al discloses wherein the quadrilateral is a 2X2 pixel quadrilateral (column 2 lines 1-10).

10. As per claims 6 and 24, Wong et al discloses wherein the derivative value is a derivative with respect to an x-axis (column 6 lines 53-67).

11. As per claims 8 and 26, Wong et al discloses wherein the derivative value is a derivative with respect to an y-axis (column 6 lines 53-67).

12. Claims 13 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong et al in view of Zwicker et al., U.S. Patent No. 6,639,597.

13. As per claim 13, Wong et al does not disclose wherein the LOD value is calculated for dependent textures. This is disclosed in Zwicker et al in column 14 lines 43-45. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use dependent textures because having the LOD change for the view would add more realism to the object that the appropriate LOD is applied.

14. As per claim 31, Wong et al discloses a computer program embodied on a computer readable medium for calculating a level of detail (LOD) value for use during computer graphics processing (column 6 lines 53-67 and column 7 lines 1-3)), comprising: a code segment for identifying a plurality of textures coordinates (column 6 lines 53-67); a code segment for computing a distance value based on the texture coordinates (column 6 lines 53-67); and a code segment for calculating a LOD value using the distance value for use during computer graphics processing (column 6 lines 53-67 and column 7 lines 1-3). , Wong et al does not disclose wherein the LOD value is calculated for dependent textures. This is disclosed in Zwicker et al in column 14 lines 43-45. It would have been obvious to one of ordinary skill in the art at the

time the invention was made to use dependent textures because having the LOD change for the view would add more realism to the object that the appropriate LOD is applied.

15. Claims 14 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malamy et al., in view of Hashimoto et al., U.S. Patent No. 6,559,853.

16. As per claims 14 and 32, Malamy et al discloses a method for calculating a level of detail (LOD) value for use during computer graphics processing, comprising: identifying a plurality of geometrically arranged coordinates (column 2 lines 30-39); computing a distance value based on the geometrically arranged coordinates (column 2 lines 30-39); and calculating a LOD value using the distance value for use during computer graphics processing (column 2 lines 30-39). However, Malamy et al does not disclose wherein the LOD value is calculated for cube environment mapping. This is disclosed in Hashimoto et al in column 2 lines 50-67. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use cube environment mapping with the system of Malamy et al because most graphic systems are optimized to use rectangular displays (column 2 lines 50-67).

17. Claims 18 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malamy et al., in view of Lee, U.S. Patent No. 6,097,397.

18. As per claims 18 and 36, Malamy et al discloses a method for calculating a level of detail (LOD) value for use during computer graphics processing, comprising: identifying a plurality of geometrically arranged coordinates (column 2 lines 30-39); computing a distance value based on the geometrically arranged coordinates (column 2 lines 30-39); and calculating a LOD value using the distance value for use during computer graphics processing (column 2 lines 30-39). However, Malamy et al does not

disclose wherein the geometrically arranged coordinates include (Z<sub>0</sub>, Z<sub>1</sub>, Z<sub>2</sub>, Z<sub>3</sub>) which are representative of a quadrilateral with Z<sub>0</sub> (P<sub>1</sub>) being an upper left corner of the quadrilateral, Z<sub>1</sub> (P<sub>3</sub>) being an upper right corner of the quadrilateral, Z<sub>2</sub> (P<sub>2</sub>) being a lower left corner of the quadrilateral, Z<sub>3</sub> (P<sub>4</sub>) being a lower right corner of the quadrilateral. This is disclosed in Lee in fig 2a. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a quadrilateral shape because the projection of the generally square pixel forms a quadrilateral (column 4 lines 24-30).

***Allowable Subject Matter***

19. Claims 15-17, 33-35 allowed.
20. The prior art of reference fails to disclose performing a coordinate space transform if the geometrically arranged coordinates reside on separate sides of the cube map. The prior art of reference fails to disclose determining if a sign of a q-value of a pixel associated with each coordinate is the same.
22. Claims 7,9, 19, 25, 27, 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Scott Wallace** whose telephone number is 703-605-5163.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at 703-305-9798.

**Art Unit: 2671**

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

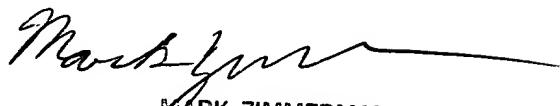
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600